STORMWATER MANAGEMENT SYSTEM INSPECTION FORMS

FROM:
OPERATION, MAINTENANCE, AND MANAGEMENT OF STORMWATER MANAGEMENT SYSTEMS

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STORMWATER MANAGEMENT SYSTEM INSPECTION FORMS

From CHAPTER 6: CONSTRUCTION INSPECTION of *Operation, Maintenance, and Management of Stormwater Management Systems*

From CHAPTER 7: INSPECTION AND MAINTENANCE AFTER CONSTRUCTION of *Operation, Maintenance, and Management of Stormwater Management Systems*

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APPENDICES
FROM CHAPTER 6

Construction Inspection Forms for Stormwater Management Practices

APPENDIX 6-1

Preconstruction Inspection Meeting Topics Form

State of New Jersey
Department of Environmental Protection
Stormwater Management Facility Maintenance Manual

Example Preconstruction Meeting Topics

A. GENERAL INFORMATION

1. Attendance
2. Purpose of project and background information
3. Emergency telephone numbers
4. Construction photograph requirements
5. Project sign requirements
6. Starting date
7. Review of contract documents, including insurance certifications, bonds and subcontractors documents
8. Field office requirements
9. Responsibility for notification of affected property owners and residents
10. Chain of command for communications and correspondence
11. Construction schedules
12. Key personnel and their degree of involvement in the project (inspector, owner, engineer, agencies, etc.)

B. POLICE AND FIRE DEPARTMENT CONCERNS

1. Traffic control
2. Barricades and signs conforming to the uniform manual
3. Noise ordinance considerations
4. Working hours, including weekend and holidays
5. Vandalism and preventative measures
6. Flagmen and traffic control officers
7. Equipment storage and vehicle parking
8. Emergency vehicle access
9. Underground tank locations and precautionary construction procedures
10. Storage and use of hazardous materials

C. UTILITIES

1. Utility locations and mark-outs
2. Coordination of utility relocations
3. Emergency phone numbers of utility companies

D. FUNDING AND PAYMENTS

1. Funding sources and availability
2. Procedures and dates for payment estimates
3. Dates for payments to contractor
4. Breakdown of lump sum items for partial payment
5. Policy for payment for materials on site at the close of a payment period
6. Retained monies during and after construction

7. Requirements of funding agencies

E. CHANGE ORDERS AND EXTRA CLAIMS

1. Requirements for additional work and submittal of change orders
2. Procedures and schedule for review and recommendations of change orders
3. Procedures for negotiating extra claims and change orders

F. CONSTRUCTION ACCESS AND EASEMENTS

1. Easement locations and maps
2. Responsibility for locating and staking easements
3. Available survey data for the site
4. Access requirements and staging areas
5. Easement restrictions and restoration requirements

G. CONSTRUCTION DETAILS

1. Unique or complex aspects of the project
2. Testing laboratories and sampling procedures
3. Cold and hot weather protection measures
4. Blasting requirements
5. Dump site location for construction related materials
6. Shop drawing requirements and review procedures
7. Specific construction techniques and procedures
8. Review of technical section of the specifications

H. PERMITS

1. Status of all required federal, state, and local permits
2. Permit restrictions and conditions
3. Start-of-work notifications

APPENDIX 6-2

General Site Inspection and Notice to Comply Forms

Construction Inspection Report Form

(adapted from State of Delaware Sediment and Stormwater Program)

Date _____ Time _____

Project _____

Location _____

Individual Contacted _____

Weather Conditions _____

Site Status _____ (active, inactive, completed)

Site Conditions:

acceptable _____
Unacceptable _____
In compliance with approved plan _____
Approved plan is adequate for the site _____

Written Comments:

_____
_____
_____
_____
_____
_____
_____

Action to be taken:

No action necessary. Continue routine inspections _____
Correct noted site deficiencies by _____
1st notice _____
2nd notice _____
Submit plan modifications as noted in written comments by _____
Notice to Comply issued _____
Final inspection, project completed _____
Other _____

_____ _____
Received by Inspector

I acknowledge receipt of this inspection report. My signature does not imply agreement or disagreement with its content

Questions or comments regarding this inspection report should be directed to the appropriate inspection agency the appropriate address and phone number.

white: developer/contractor yellow: file pink: legal/enforcement

Notice to Comply Inspection Report Form

(adapted from State of Delaware Sediment and Stormwater Program)

Date _____

To: _____
Address: _____
_____

Project/Site/Contract Name _____

An inspection of the above referenced project on _____(Date) revealed that the site is not in compliance with the approved Sediment Control and Stormwater Management Plan, approved Plan amendments, Law, or Regulations, and the following violations exist:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Notice is hereby given that the above violations shall be corrected in accordance with the approved Sediment Control and Stormwater Management Plan, approved Plan amendments, Law, or Regulations on or before _____ (Date). The site will be reinspected at that time to determine if the site has been brought into compliance with the approved Plan, approved Plan amendments, Law, or Regulations.

Failure to comply with this notice will result in the initiation of legal action by the Department in order to bring the site into compliance with the approved Plan, approved Plan amendments, Law, or Regulations.

_____ _____
Received by Inspector

I hereby acknowledge receipt of this notice
to comply. My signature does not imply
agreement or disagreement with its content

Questions or comments regarding this inspection report should be directed to the appropriate inspection agency at the appropriate address and phone number

white: developer/contractor yellow: file pink: legal/enforcement

APPENDIX 6-3

Sediment/Stormwater Management Basin Construction Inspection Checklist

Sediment/Stormwater Management Basin Construction Checklist

For Permanent structures per Delaware NRCS Pond Code 378 and Delaware Sediment and Stormwater Regulations
(Developed by Randy Greer, Environmental Engineer)

KEY

_4__ Item meets standard
_6__ Item not acceptable
_**N/A**_ Item not applicable
_**C**___ Item requires engineer's certification

PROJECT INFORMATION

Project ID: _____
Contractor: _____
Inspector: _____
Date(s): _____

I. Materials and Equipment

_____ Pipe and appurtenances on-site prior to construction and dimensions checked.
- _____ 1. Material (including protective coating, if specified)
- _____ 2. Diameter
- _____ 3. Dimensions of metal riser or pre-cast concrete outlet structure
- _____ 4. Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with approved plans
- _____ 5. Barrel stub for prefabricated pipe structures at proper angle for design barrel slope
- _____ 6. Number and dimensions of prefabricated anti-seep collars
- _____ 7. Watertight connectors and gaskets
- _____ 8. Outlet drain valve

_____ Appropriate compaction equipment available, including hand and small power tamps
_____ Project benchmark near pond site
_____ Equipment for temporary de-watering

II. Subgrade Preparation

_____ Area beneath embankment stripped of all vegetation, topsoil, and organic matter
_____ Cut-off trench excavated a minimum of 4 feet below subgrade and minimum 4 feet below proposed pipe invert, with side slopes no steeper than 1:1
_____ Impervious material used to backfill cut-off trench

III. Pipe Spillway Installation

_____ Method of installation detailed on plans

A. Bed preparation
- _____ Installation trench excavated with 1:1 side slopes
- _____ Stable, uniform, dry subgrade of relatively impervious material *(If subgrade is wet, contractor shall have defined steps before proceeding with installation)*
- _____ Invert at proper elevation and grade

B. Pipe placement

_____ Metal/Plastic pipe

_____ 1. Watertight connectors and gaskets properly installed

_____ 2. Anti-seep collars properly spaced and having watertight connections to pipe

_____ 3. Backfill placed and tamped by hand under “haunches” of pipe

_____ 4. Remaining backfill placed in max. 8" lifts using small power tamping equipment until 2 feet cover over pipe is reached

_____ Concrete pipe

_____ 1. Pipe set on blocks or concrete slab for pouring of low cradle

_____ 2. Pipe installed with rubber gasket joints with no spalling in gasket interface area

_____ 3. Excavation for lower half of anti-seep collar(s) with reinforcing steel set

_____ 4. Entire area where anti-seep collar(s) will come in contact with pipe coated with mastic or other approved waterproof sealant

_____ 5. Low cradle and bottom half of anti-seep collar installed as monolithic pour and of an approved mix

_____ 6. Upper half of anti-seep collar(s) formed with reinforcing steel set

_____ 7. Concrete for collar of an approved mix and vibrated into place. (Protected from freezing while curing, if necessary)

_____ 8. Forms stripped and collar inspected for honeycomb prior to backfilling. Parge if necessary

C. Backfilling

_____ Fill placed in maximum 8" lifts

_____ Backfill taken minimum 2 feet above top of anti-seep collar elevation before traversing with heavy equipment

IV. Riser/Outlet Structure Installation

A. Metal riser

_____ Riser base excavated or formed on stable subgrade to design dimensions

_____ Embedded section of aluminum or aluminized pipe to be painted with zinc chromate or equivalent on **inside and outside** surfaces

_____ Set on blocks to design elevations and plumbed

_____ Reinforcing bars placed at right angles and projecting into sides of riser

_____ Concrete poured so as to fill inside of riser to invert of barrel

B. Pre-cast concrete structure

_____ Dry and stable subgrade

_____ Riser base set to design elevation

_____ If more than one section, no spalling in gasket interface area; gasket or approved caulking material placed securely

_____ Watertight and structurally sound collar or gasket joint where structure connects to pipe spillway

C. Poured concrete structure

_____ Footing excavated or formed on stable subgrade, to design dimensions with reinforcing steel set

_____ Structure formed to design dimensions, with reinforcing steel set as per plan

_____ Concrete of an approved mix and vibrated into place. (Protected from freezing while curing, if necessary)

_____ Forms stripped and structure inspected for “honeycomb” prior to backfilling. Parge if necessary

V. Embankment Construction

A. Fill material
_____ Soil engineer's test
_____ Visual test by inspector

B. Compaction
_____ Soil engineer's test
_____ Visual test by inspector

C. Embankment
_____ Fill placed in maximum 8" lifts and compacted with appropriate equipment
_____ Constructed to design cross-section, side slopes and top width
_____ Constructed to design elevation plus allowance for settlement

VI. Impounded Area Construction

_____ Excavated/graded to design contours and side slopes
_____ Inlet pipes have adequate outfall protection
_____ Forebay(s)
_____ Wet pond requirements
_____ 1. 10 feet reverse slope bench one foot above normal pool elevation
_____ 2. 10 feet wide level bench one foot below normal pool elevation

VII. Earth Emergency Spillway Construction

_____ Spillway located in cut or structurally stabilized with riprap, gabions, concrete, etc.
_____ Excavated to proper cross-section, side slopes and bottom width
_____ Entrance channel, crest, and exit channel constructed to design grades and elevations

VIII. Outlet Protection

A. End section
_____ Securely in place and properly backfilled

B. Endwall
_____ Footing excavated or formed on stable subgrade, to design dimensions and reinforcing steel set, if specified
_____ Endwall formed to design dimensions with reinforcing steel set as per plan
_____ Concrete of an approved mix and vibrated into place. (Protected from freezing, if necessary
_____ Forms stripped and structure inspected for "honeycomb" prior to backfilling. Parge if necessary

C. Riprap apron/channel
_____ Apron/channel excavated to design cross-section with proper transition to existing ground
_____ Filter fabric in place
_____ Stone sized as per plan and uniformly placed at the thickness specified

IX. Vegetative Stabilization

_____ Approved seed mixture or sod
_____ Proper surface preparation and required soil amendments
_____ Excelsior mat or other stabilization materials, as per plan

X. Miscellaneous

_____ Toe drain
_____ Temporary dewatering device installed as per plan with appropriate fabric, stone size and perforations if included
_____ Drain for ponds having a permanent pool
_____ Trash rack/anti-vortex device secured to outlet structure
_____ Trash protection for low flow pipes, orifices, etc.
_____ Fencing (when required)
_____ Access road
_____ Set aside area for clean-out maintenance

APPENDIX 6-4

Sediment/Stormwater Pond
Typical Sequence of Construction
for
Embankment Ponds with
Riser/Barrel Outlet Structures
for
Developers and Contractors

Stormwater/Sediment Pond
Typical Sequence of Construction for Embankment Ponds with Riser/Barrel Outlet Structures for Developers and Contractors

(Developed by Randy Greer, Environmental Engineer
Delaware Department of Natural Resources and Environmental Control
Sediment and Stormwater Program)

1. NOTIFY PLAN REVIEW/CONSTRUCTION REVIEW AGENCY AS REQUIRED

    a. Arrange the preconstruction meeting
    b. Clear up any questions regarding the approved plan

2. PRE-CONSTRUCTION MEETING WITH CONSTRUCTION REVIEW AGENCY

    a. Review the site plan and layout and discuss any problems or changes needed to the plan
    b. Obtain approvals for the plan changes from the appropriate inspection or plan review agency
    c. Discuss the stages of construction which notification to the construction review agency is needed

3. SITE LAYOUT

    a. Make sure site layout agrees with the plan
    b. Check elevation of the proposed outfall structure
    c. Physically mark any areas not to be disturbed, such as limit of disturbance, wetlands, property lines, etc.

4. INSTALL PERIMETER EROSION AND SEDIMENT CONTROLS

    a. Sediment controls will be needed at the downstream perimeter during the clearing and grubbing for the pond wherever sediment may leave the site.

5. INSTALL TEMPORARY CHANNEL DIVERSION

    a. Divert clean water flow away from pond area
    b. Stabilize the diversion

6. CLEAR AND GRUB THE POND AREA

7. REMOVE TOPSOIL FROM THE POND AREA

    a. Stockpile the soil in an approved location
    b. Stabilize the stockpile area

8. FACILITY STAKEOUT

    a. Stakeout centerline of embankment, outside and inside toe of slopes

9. CORE TRENCH/EMBANKMENT AREA

    a. Arrange to meet the site reviewer to discuss location of core trench
    b. If core trench is needed, determine where material will come from before trench is opened.
    c. Make arrangements for de-watering of the core trench if necessary
    d. Excavate for core trench
    e. Fill core trench with suitable material assuring proper compaction to existing ground elevation

10. CONSTRUCT OUTFALL CHANNEL

    a. Rock outlet protection with filter cloth
    b. Remaining channel constructed and stabilized

11. INSTALL BARREL WITH ANTI-SEEP COLLARS

    a. This should be done BEFORE any embankment work
    b. Prepare the bedding for the barrel
    c. Place barrel and anti-seep collars checking pipe grade
    d. Watertight pipe connections to be checked
    e. Backfill of barrel with particular attention to the compaction requirements. All structural backfill shall be completely free of rocks and other objectionable material

12. RISER PLACEMENT

    a. Check riser structure for conformance to specifications
    b. Check elevation of structure
    c. Set riser and pour concrete riser base

13. INSTALL ANY EROSION CONTROL STRUCTURES REQUIRED

14. CONSTRUCT REMAINING CORE AND EMBANKMENT

    a. Most impervious material placed in core of embankment
    b. Material should be checked and approved for suitability
    c. Compact the embankment according to specifications
    d. Check UNSETTLED elevation and top width of embankment
    e. Stabilize embankment

15. DIVERT FLOWS INTO PIPE SYSTEM

16. CONSTRUCT EMERGENCY SPILLWAY

    a. If earth spillway, construct in undisturbed ground
    b. Check elevation of control section and exit channel

17. INSTALL INFLOW CHANNELS

    a. Stabilize according to plan including pipe outfalls into pond

18. COMPLETE EXCAVATION OF POND TO FINAL GRADE

19. VEGETATIVELY STABILIZE ALL DISTURBED AREAS

20. COMPLETE POND CONVERSION

a. Requires approval of inspector to convert from sediment to stormwater control
b. Properly de-water the pond in an approved manner
c. Remove accumulated sediment and restore pond to design grade. Complete final stabilization
d. Make any structural modifications to the riser for permanent function

APPENDIX 6-5

Construction Checklists for Infiltration Practices

Basins (Appendix 6-5A)
Trenches (Appendix 6-5B)
Dry Wells (Appendix 6-5C)
Paving (Appendix 6-5D)
Swales (Appendix 6-5E)

Infiltration Basin Construction Inspection Report Form

Adapted from the State of Maryland Inspector's Guidelines Manual

Date _____ Time _____

Project _____

Location _____

Individual Contacted _____

Site Status _____ (active, inactive, completed)

	Satisfactory	Unsatisfactory
1. Pre-construction		
Runoff diverted	_____	_____
Area stabilized	_____	_____
2. Excavation		
Size and location	_____	_____
Side slope stable	_____	_____
Soil Permeability	_____	_____
Groundwater/Bedrock	_____	_____
3. Embankment		
Cut-off trench	_____	_____
Fill material	_____	_____
4. Final Excavation		
Drainage area stabilized	_____	_____
Sediment removed from facility	_____	_____
Basin floor tilled	_____	_____
Facility stabilized	_____	_____
5. Final Inspection		
Pretreatment facility in place	_____	_____
Inlets/outlets	_____	_____
Site stabilization	_____	_____
Access to facility provided	_____	_____

Action to be taken:

No action necessary. Continue routine inspections _____
Correct noted site deficiencies by _____
1st notice _____
2nd notice _____
Submit plan modifications as noted in written comments by _____
Notice to Comply issued _____
Final inspection, project completed _____

Infiltration Trench Construction Inspection Report Form

Adapted from the State of Maryland Inspector's Guidelines Manual

Date _____ Time _____

Project _____

Location _____

Individual Contacted _____

Site Status _____ (active, inactive, completed)

	Satisfactory	Unsatisfactory
1. Pre-construction		
Runoff diverted	_____	_____
Area stabilized	_____	_____
2. Excavation		
Size and location	_____	_____
Side slope stable	_____	_____
Soil Permeability	_____	_____
Groundwater/Bedrock	_____	_____
3. Filter Fabric Placement		
Fabric specification	_____	_____
Placed on bottom, sides, and top	_____	_____
4. Aggregate Material		
Size as specified	_____	_____
Clean/washed material	_____	_____
Placed properly	_____	_____
5. Observation Well		
Pipe size	_____	_____
Removable cap/footplate	_____	_____
Initial depth = _____ ft.	_____	_____
6. Final Inspection		
Pretreatment facility in place	_____	_____
Stabilization	_____	_____
Outlet	_____	_____

Action to be taken:

No action necessary. Continue routine inspections _____

Correct noted site deficiencies by _____

1st notice _____

2nd notice _____

Submit plan modifications as noted in written comments by _____

Notice to Comply issued _____

Final inspection, project completed _____

Infiltration Drywell Construction Inspection Report Form

Adapted from the State of Maryland Inspector's Guidelines Manual

Date _____ Time _____

Project _____

Location _____

Individual Contacted _____

Site Status _____ (active, inactive, completed)

	Satisfactory	Unsatisfactory
1. Pre-construction		
Runoff diverted	_____	_____
Area stabilized	_____	_____
2. Excavation		
Size and location	_____	_____
Side slope stable	_____	_____
Soil Permeability	_____	_____
Groundwater/Bedrock	_____	_____
3. Filter Fabric Placement		
Fabric specification	_____	_____
Placed on bottom, sides, and top	_____	_____
4. Aggregate Material		
Size as specified	_____	_____
Clean/washed material	_____	_____
Placed properly	_____	_____
5. Observation Well/roof leader		
Pipe size	_____	_____
Removable cap/footplate	_____	_____
Initial depth = _____ ft.	_____	_____
6. Final Inspection		
Pretreatment facility in place	_____	_____
Debris/gutter screens	_____	_____
Stabilization	_____	_____
Outlet	_____	_____

Action to be taken:

No action necessary. Continue routine inspections _____

Correct noted site deficiencies by _____

1st notice _____

2nd notice _____

Submit plan modifications as noted in written comments by _____

Notice to Comply issued _____

Infiltration Paving Construction Inspection Report Form

Adapted from the State of Maryland Inspector's Guidelines Manual

Date _____ Time _____

Project _____

Location _____

Individual Contacted _____

Site Status _____ (active, inactive, completed)

	Satisfactory	Unsatisfactory
1. Pre-construction		
Runoff diverted	_____	_____
Area stabilized	_____	_____
2. Excavation		
Size and location	_____	_____
Side slope stable	_____	_____
Soil Permeability	_____	_____
Groundwater/Bedrock	_____	_____
3. Filter Fabric Placement		
Fabric specification	_____	_____
Placed on bottom, sides, and top	_____	_____
4. Aggregate Base Course		
Size as specified	_____	_____
Clean/washed material	_____	_____
Placed properly	_____	_____
5. Aggregate Filter Course		
Size	_____	_____
Clean/washed material	_____	_____
Placed Properly	_____	_____
6. Porous Surface Course		
Proper temperature/compaction	_____	_____
7. Final Inspection		
Smooth Surface & Transition	_____	_____
Test section	_____	_____
Final stabilization	_____	_____

Action to be taken:

No action necessary. Continue routine inspections _____

Correct noted site deficiencies by _____

1st notice _____

2nd notice _____

Submit plan modifications as noted in written comments by _____

Notice to Comply issued _____ Final inspection, project completed _____

Infiltration Swale Construction Inspection Report Form

Adapted from the State of Maryland Inspector's Guidelines Manual

Date _____ Time _____

Project _____

Location _____

Individual Contacted _____

Site Status _____ (active, inactive, completed)

1. Pre-construction

	Satisfactory	Unsatisfactory
Runoff diverted		
Area stabilized		

2. Excavation

Size and location		
Side slope stable		
Soil Permeability		
Groundwater/Bedrock		

3. Check dams

Dimensions		
Compaction		

4. Final Inspection

Dimensions		
Check dams		
Proper outlet		
Effective stabilization		

Action to be taken:

No action necessary. Continue routine inspections _____
Correct noted site deficiencies by _____
1st notice _____
2nd notice _____
Submit plan modifications as noted in written comments by _____
Notice to Comply issued _____
Final inspection, project completed _____

APPENDIX 6-6

Construction Checklist for Filtration Practices

Filtration Facility Construction Inspection Report Form

Date _____ Time _____

Project _____

Location _____

Individual Contacted _____

Site Status _____ (active, inactive, completed)

	Satisfactory	Unsatisfactory
1. Pre-construction		
Runoff diverted		
Facility area cleared		
Facility location staked out		
2. Excavation		
Size and location		
Side slopes stable		
Foundation cleared of debris		
Foundation area compacted		
3. Structural Components		
Dimensions and materials		
Forms adequately sized		
Concrete meets standards		
Prefabricated joints sealed		
Underdrains (size, materials)		
4. Completed Facility Components		
24 hour water filled test		
Contributing area stabilized		
Filter material per specification		
Underdrains installed to grade		
5. Final Inspection		
Dimensions		
Structural Components		
Proper outlet		
Effective site stabilization		

Action to be taken:

No action necessary. Continue routine inspections _____
Correct noted site deficiencies by _____
1st notice _____
2nd notice _____
Submit plan modifications as noted in written comments by _____
Notice to Comply issued _____
Final inspection, project completed _____

APPENDIX 6-7

Construction Checklist for Biofiltration Practices

Biofiltration Construction Inspection Report Form

Date _____ Time _____

Project _____

Location _____

Individual Contacted _____

Site Status _____ (active, inactive, completed)

1. Pre-construction

	Satisfactory	Unsatisfactory
Runoff diverted		
Facility area cleared		
Facility location staked out		
Facility not in heavily shaded area		

2. Excavation

Size and location		
Lateral slopes completely level		
Longitudinal slopes within design range		

3. Check dams and Level Spreaders

Dimensions, spacing, and materials		
Compaction		
Level spreaders are completely level		

4. Structural Components

Inlets and outlets installed correctly		
Flow bypasses installed correctly		
Pretreatment devices installed		
Curb cuts installed per plans		

5. Vegetation

Complies with planting specs.		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		

4. Final Inspection

Dimensions		
Check dams and level spreaders		
Proper outlet		
Effective stand of vegetation and stabilization		
Construction generated sediments removed		

Action to be taken:

No action necessary. Continue routine inspections _____
Correct noted site deficiencies by _____
1st notice _____
2nd notice _____
Submit plan modifications as noted in written comments by _____
Notice to Comply issued _____
Final inspection, project completed _____

APPENDICES
FROM CHAPTER 7

Operation, Maintenance, and Management Inspection Forms for Stormwater Management Practices

APPENDIX 7-1

Operation, Maintenance, and Management Inspection Checklist for Ponds

Operation and Maintenance Inspection Report for Stormwater Management Ponds

(Adapted from Anne Arundel County, Maryland)

Inspector Name _____ Community _____
Inspection Date _____ Address _____
Stormwater Pond _____
Normal Pool _____ _____
Normally Dry _____ Watershed _____

Items inspected	Checked Yes	Checked No	Maintenance Needed Yes	Maintenance Needed No	Inspection Frequency	Remarks
I, Pond components						
A. Embankment and Emergency spillway					A,S	
1. Vegetation and ground Cover adequate						
2. Embankment erosion						
3. Animal burrows						
4. Unauthorized plantings						
5. Cracking, bulging, or sliding of dam						
a. Upstream face						
b. Downstream face						
c. At or beyond toe Upstream						
Downstream						
d. Emergency spillway						
6. Pond, toe & chimney drains clear and functioning						
7. Seeps/leaks on downstream face						
8. Slope protection or riprap failures						
9. Vertical and horizontal alignment of top of dam as per "As-Built" plans						
10. Emergency spillway clear of obstructions and debris						
11. Other (specify)						
B. Riser and principal spillway					A	
Type: Reinforced concrete ___ Corrugated pipe ___ Masonry ___						
1. Low flow orifice obstructed						
2. Low flow trash rack						
a. Debris removal necessary						
b. Corrosion control						
3. Weir trash rack maintenance						
a. Debris removal necessary						
b. Corrosion control						

Inspection Frequency Key A=Annual, M=Monthly, S=After major storm

Items inspected	Checked Yes	Checked No	Maintenance Needed Yes	Maintenance Needed No	Inspection Frequency	Remarks
4. Excessive sediment accumulation inside riser						
5. Concrete/Masonry condition Riser and barrels						
a. Cracks or displacement						
b. Minor spalling (<1")						
c. Major spalling (rebars exposed)						
d. Joint failures						
e. Water tightness						
6. Metal pipe condition						
7. Control valve						
a. Operational/exercised						
b. Chained and locked						
8. Pond drain valve						
a. Operational/exercised						
b. Chained and locked						
9. Outfall channels functioning						
10. Other (specify)						
C. Permanent pool (wet ponds)					M	
1. Undesirable vegetative growth						
2. Floating or floatable debris removal required						
3. Visible pollution						
4. Shoreline problems						
5. Other (specify)						
D. Sediment forebays						
1. Sedimentation noted						
2. Sediment cleanout when depth < 50% design depth						
E. Dry pond areas					M	
1. Vegetation adequate						
2. Undesirable vegetative growth						
3. Undesirable woody vegetation						
4. Low flow channels clear of obstructions						
5. Standing water or wet spots						
6. Sediment and/or trash accumulation						
7. Other (specify)						
F. Condition of outfalls into pond					A,S	
1. Riprap failures						
2. Slope erosion						
3. Storm drain pipes						
4. Endwalls/headwalls						
5. Other (specify)						
G. Other					M	
1. Encroachments on pond or easement area						

Inspection Frequency Key A=Annual, M=Monthly, S=After major storm

Items inspected	Checked Yes	Checked No	Maintenance Needed Yes	Maintenance Needed No	Inspection Frequency	Remarks
2. Complaints from residents (describe on back)						
3. Aesthetics						
a. grass mowing required						
b. graffiti removal needed						
c. Other (specify)						
4. Any public hazards (specify)						
5. Maintenance access						
H. Constructed wetland areas					A	
1. Vegetation healthy and growing						
2. Evidence of invasive species						
3. Excessive sedimentation in wetland area						

Inspection Frequency Key A=Annual, M=Monthly, S=After major storm

II. Summary

1. Inspectors Remarks: _____

2. Overall condition of Facility (Check one)

_____ Acceptable
_____ Unacceptable

3. Dates any maintenance must be completed by:

_____

APPENDIX 7-2

Operation, Maintenance, and Management Inspection Checklists for Infiltration Practices:

Basins (Appendix 7-2A)
Trenches (Appendix 7-2B)
Dry Wells (Appendix 7-2C)
Paving (Appendix 7-2D)
Swales (Appendix 7-2E)

Infiltration Basin Maintenance Inspection Report Form

Adapted from the State of Maryland Inspector's Guidelines Manual

Date _____ Time _____

Project _____

Location _____

Individual Conducting the Inspection _____ "As Built" Plans available Y/N

Inspection frequency shown in parentheses after item being considered

		Satisfactory	Unsatisfactory
1. Debris cleanout	(Monthly)		
Basin bottom clear of debris		_____	_____
Inlet clear of debris		_____	_____
Outlet clear of debris		_____	_____
Emergency spillway clear of debris		_____	_____
2. Sediment traps or forebays	(Annual)		
Obviously trapping sediment		_____	_____
greater than 50% of storage volume remaining		_____	_____
3. Vegetation	(Monthly)		
mowing done when needed		_____	_____
Fertilized per specifications		_____	_____
No evidence of erosion			
4. Dewatering	(Monthly)		
Basin dewaters between storms		_____	_____
5. Sediment cleanout of basin	(Annual)		
No evidence of sedimentation in basin		_____	_____
Sediment accumulation does not yet require cleanout		_____	_____
6. Inlets	(Annual)		
Good condition		_____	_____
No evidence of erosion		_____	_____
7. Outlets/overflow spillway	(Annual, After Major Storm)		
Good condition, no need for repair		_____	_____
No evidence of erosion		_____	_____
8. Structural repairs	(Annual, After Major Storm)		
Embankment in good repair		_____	_____
Side slopes are stable		_____	_____
No evidence of erosion		_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

	Satisfactory	Unsatisfactory
9. Fences/access repairs (Annual)		
Fences in good condition	_____	_____
No damage which would allow undesired entry	_____	_____
Access point in good condition	_____	_____
Locks and gate function adequate	_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

Action to be taken:

If any of the answers to the above items are checked unsatisfactory, a time frame shall be established for their correction or repair

No action necessary. Continue routine inspections _____
Correct noted facility deficiencies by _____

Facility repairs were indicated and completed. Site reinspection is necessary to verify corrections or improvements.

Site reinspection accomplished on _____

Site reinspection was satisfactory. Next routine inspection is scheduled for approximately:

_____

_____

Signature of Inspector

Infiltration Trench Maintenance Inspection Report Form

Adapted from the State of Maryland Inspector's Guidelines Manual

Date _____ Time _____

Project _____

Location _____

Individual Conducting the Inspection _____ "As Built" Plans available Y/N

Inspection frequency shown in parentheses after item being considered

		Satisfactory	Unsatisfactory
1. Debris cleanout	(Monthly)		
Trench surface clear of debris		_____	_____
Inlet areas clear of debris		_____	_____
Inflow pipes clear of debris		_____	_____
Overflow spillway clear of debris		_____	_____
2. Sediment traps, forebays, or pretreatment swales	(Annual)		
Obviously trapping sediment		_____	_____
greater than 50% of storage volume remaining		_____	_____
3. Vegetation	(Monthly)		
mowing done when needed		_____	_____
Fertilized per specifications		_____	_____
No evidence of erosion			
4. Dewatering	(Monthly)		
Trench dewaters between storms		_____	_____
5. Sediment cleanout of trench	(Annual)		
No evidence of sedimentation in trench		_____	_____
Sediment accumulation does not yet require cleanout		_____	_____
6. Inlets	(Annual)		
Good condition		_____	_____
No evidence of erosion		_____	_____
7. Outlets/overflow spillway	(Annual)		
Good condition, no need for repair		_____	_____
No evidence of erosion		_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

	Satisfactory	Unsatisfactory
8. Aggregate repairs (Annual)		
Surface of aggregate clean	_____	_____
Top layer of stone does not need replacement	_____	_____
Trench does not need rehabilitation	_____	_____
9. Vegetated surface (Monthly)		
No evidence of erosion	_____	_____
Perforated inlet functioning adequately	_____	_____
Water does not stand on vegetative surface	_____	_____
Good vegetative cover exists	_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

Action to be taken:

If any of the answers to the above items are checked unsatisfactory, a time frame shall be established for their correction or repair

No action necessary. Continue routine inspections _____
Correct noted facility deficiencies by _____

Facility repairs were indicated and completed. Site reinspection is necessary to verify corrections or improvements.

Site reinspection accomplished on _____

Site reinspection was satisfactory. Next routine inspection is scheduled for approximately:

_____

_____

Signature of Inspector

Infiltration Dry Well Maintenance Inspection Report Form

Date _____ Time _____

Project _____

Location _____

Individual Conducting the Inspection _____ "As Built" Plans available Y/N

Inspection frequency shown in parentheses after item being considered

		Satisfactory	Unsatisfactory
1. Debris cleanout	(Monthly)		
Roof drains and downspouts clean		_____	_____
2. Vegetation on top of dry well	(Monthly)		
mowing done when needed		_____	_____
Fertilized per specifications		_____	_____
No evidence of erosion		_____	_____
3. Dewatering	(Monthly)		
Dry well dewaters between storms		_____	_____
4. Inlets	(Annual)		
Good condition of down spouts		_____	_____
No evidence of deterioration		_____	_____
Roof gutters drain correctly into dry well		_____	_____
5. Outlets/overflow spillway	(Annual)		
Good condition, no need for repair		_____	_____
No evidence of erosion		_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

Action to be taken:

If any of the answers to the above items are checked unsatisfactory, a time frame shall be established for their correction or repair

No action necessary. Continue routine inspections _____
Correct noted facility deficiencies by _____

Facility repairs were indicated and completed. Site reinspection is necessary to verify corrections or improvements.

Site reinspection accomplished on _____

Site reinspection was satisfactory. Next routine inspection is scheduled for approximately:

_____

_____

Signature of Inspector

Infiltration Paving Maintenance Inspection Report Form

Date _____ Time _____

Project _____

Location _____

Individual Conducting the Inspection _____ "As Built" Plans available Y/N

Inspection frequency shown in parentheses after item being considered

		Satisfactory	Unsatisfactory
1. Debris on infiltration paving parking area	(Monthly)		
Paving area clean of debris		_____	_____
2. Vegetation (any buffer areas or pervious areas in drainage area)	(Monthly)		
mowing done when needed		_____	_____
Fertilized per specifications		_____	_____
No evidence of erosion		_____	_____
3. Dewatering	(Monthly)		
Infiltration paving dewaters between storms		_____	_____
4. Sediments	(Monthly)		
Area clean of sediments		_____	_____
Area vacuum swept on a periodic basis		_____	_____
5. Structural condition	(Annual)		
No evidence of surface deterioration		_____	_____
No evidence of rutting or spalling		_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

Action to be taken:

If any of the answers to the above items are checked unsatisfactory, a time frame shall be established for their correction or repair

No action necessary. Continue routine inspections _____
Correct noted facility deficiencies by _____

Facility repairs were indicated and completed. Site reinspection is necessary to verify corrections or improvements.

Site reinspection accomplished on _____

Site reinspection was satisfactory. Next routine inspection is scheduled for approximately:

_____

_____

Signature of Inspector

Infiltration Swale Well Maintenance Inspection Report Form

Date _____ Time _____

Project _____

Location _____

Individual Conducting the Inspection _____ "As Built" Plans available Y/N

Inspection frequency shown in parentheses after item being considered

		Satisfactory	Unsatisfactory
1. Debris cleanout	(Monthly)		
Swales and contributing areas clean of debris		_____	_____
2. Vegetation	(Monthly)		
mowing done when needed		_____	_____
Fertilized per specifications		_____	_____
No evidence of erosion		_____	_____
Minimum mowing depth not exceeded		_____	_____
3. Dewatering	(Monthly)		
Swale dewaters between storms		_____	_____
4. Check dams or energy dissipators	(Annual, After Major Storm)		
No evidence of flow going around structures		_____	_____
No evidence of erosion at downstream toe		_____	_____
5. Sediment deposition	(Annual)		
Swale clean of sediments		_____	_____
6. Outlets/overflow spillway	(Annual, After Major Storm)		
Good condition, no need for repair		_____	_____
No evidence of erosion		_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

Action to be taken:

If any of the answers to the above items are checked unsatisfactory, a time frame shall be established for their correction or repair

No action necessary. Continue routine inspections _____
Correct noted facility deficiencies by _____

Facility repairs were indicated and completed. Site reinspection is necessary to verify corrections.

Site reinspection accomplished on _____

Site reinspection was satisfactory. Next routine inspection is scheduled for approximately:

_____ _____
Signature of Inspector

APPENDIX 7-3

Operation, Maintenance and Management Inspection Checklist for Filtration Practices

Filtration Facility Maintenance Inspection Report Form

Date _____ Time _____

Project _____

Location _____

Individual Conducting the Inspection _____ "As Built" Plans available Y/N

Warning: If filtration facility has a watertight cover; be careful regarding the possibility of flammable gases within the facility. Care should be taken lighting a match or smoking while inspecting facilities that are not vented.

Inspection frequency shown in parentheses after item being considered

		Satisfactory	Unsatisfactory
1. Debris cleanout	(Monthly)		
Contributing areas clean of debris		_____	_____
Filtration facility clean of debris		_____	_____
Inlets and outlets clear of debris		_____	_____
2. Vegetation	(Monthly)		
Contributing drainage area stabilized		_____	_____
No evidence of erosion		_____	_____
Area mowed and clippings removed			
3. Oil and grease	(Monthly)		
No evidence of filter surface clogging		_____	_____
Activities in drainage area minimize oil & grease entry		_____	_____
4. Water retention where required	(Monthly)		
Water holding chambers at normal pool		_____	_____
No evidence of leakage		_____	_____
5. Sediment deposition	(Annual)		
Filtration chamber clean of sediments		_____	_____
Water chambers not more than 1/2 full of sediments		_____	_____
6. Structural components	(Annual)		
No evidence of structural deterioration		_____	_____
Any grates are in good condition		_____	_____
No evidence of spalling or cracking of structural parts		_____	_____
7. Outlets/overflow spillway	(Annual)		
Good condition, no need for repair		_____	_____
No evidence of erosion (if draining into a natural channel)		_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

		Satisfactory	Unsatisfactory
8. Overall function of facility	(Annual)		
No evidence of flow bypassing facility		_____	_____
No noticeable odors outside of facility		_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

Action to be taken:

If any of the answers to the above items are checked unsatisfactory, a time frame shall be established for their correction or repair

No action necessary. Continue routine inspections _____
Correct noted facility deficiencies by _____

Facility repairs were indicated and completed. Site reinspection is necessary to verify corrections or repairs.

Site reinspection accomplished on _____

Site reinspection was satisfactory. Next routine inspection is scheduled for approximately:

_____ _____
Signature of Inspector

APPENDIX 7-4

Operation, Maintenance and Management Inspection Checklist for Biofiltration Practices

Biofiltration Facility Maintenance Inspection Report Form

Date _____ Time _____

Project _____

Location _____

Individual Conducting the Inspection _____ "As Built" Plans available Y/N

Inspection frequency shown in parentheses after item being considered

		Satisfactory	Unsatisfactory
1. Debris cleanout	(Monthly)		
Biofilters and contributing areas clean of debris		_____	_____
No dumping of yard wastes into biofilter		_____	_____
Litter (branches, etc.) have been removed		_____	_____
2. Vegetation	(Monthly)		
Plant height not less than design water depth		_____	_____
Fertilized per specifications		_____	_____
No evidence of erosion		_____	_____
Grass height not greater than 6 inches		_____	_____
Is plant composition according to approved plans		_____	_____
No placement of inappropriate plants		_____	_____
3. Dewatering	(Monthly)		
Biofilter dewaters between storms		_____	_____
No evidence of standing water		_____	_____
4. Check dams/energy dissipators/sumps	(Annual, After Major Storm)		
No evidence of sediment buildup		_____	_____
Sumps should not be more than 50% full of sediment		_____	_____
No evidence of erosion at downstream toe of drop structures		_____	_____
5. Sediment deposition	(Annual)		
Swale clean of sediments		_____	_____
Sediments should not be > than 20% of swale design depth		_____	_____
6. Outlets/overflow spillway	(Annual, After Major Storm)		
Good condition, no need for repair		_____	_____
No evidence of erosion		_____	_____
No evidence of any blockages		_____	_____
7. Integrity of biofilter	(Annual)		
Biofilter has not been blocked or filled inappropriately		_____	_____

Inspection Frequency Key Annual, Monthly, After major storm

Action to be taken:

If any of the answers to the above items are checked unsatisfactory, a time frame shall be established for their correction or repair

No action necessary. Continue routine inspections _____
Correct noted facility deficiencies by _____

Facility repairs were indicated and completed. Site reinspection is necessary to verify corrections.

Site reinspection accomplished on _____

Site reinspection was satisfactory. Next routine inspection is scheduled for approximately:

_____ _____

Signature of Inspector